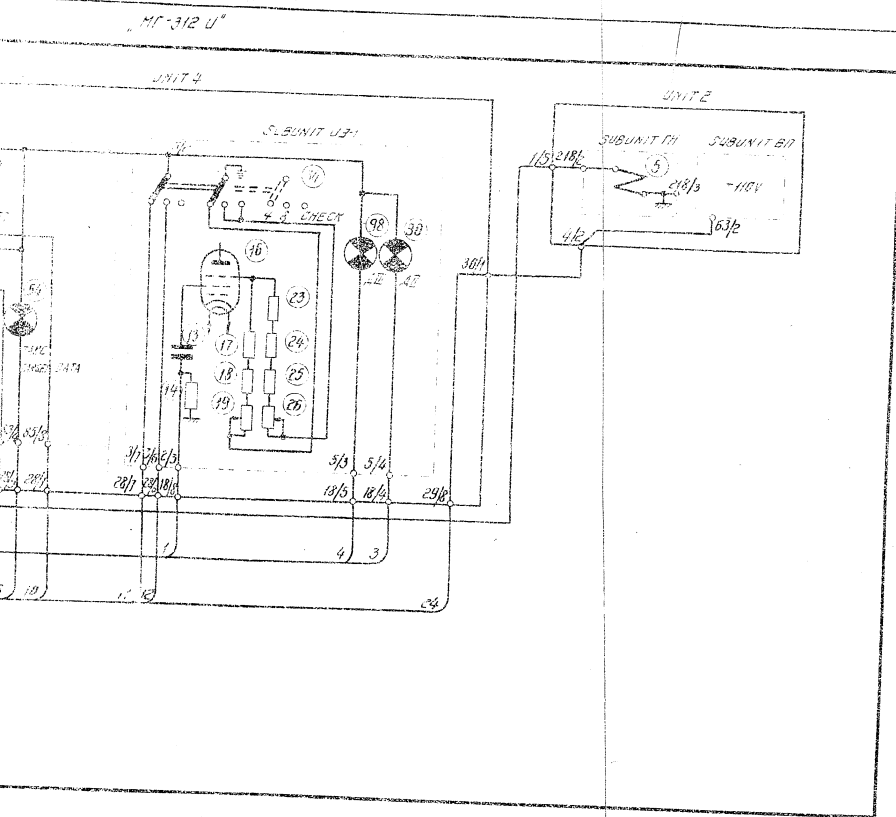


МГ-311 EQUIPMENT

TABLE OF CABLE CORES
TO CONNECTION DIAGRAMS

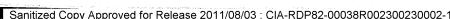
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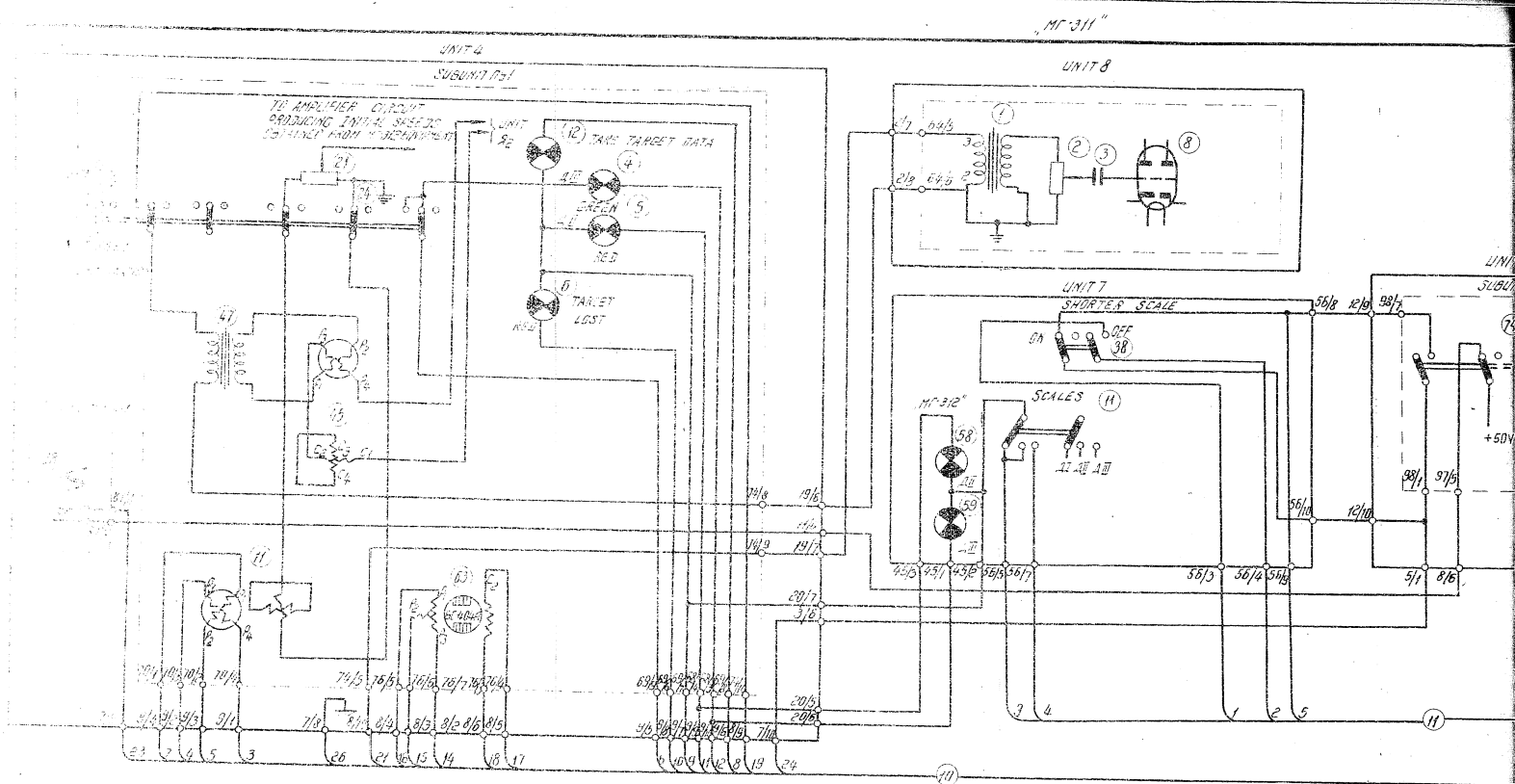


MF-311
DIAGRAM SHOWING
CONNECTION WITH
MF-312 U"
EQUIPMENT

141106046 CX12

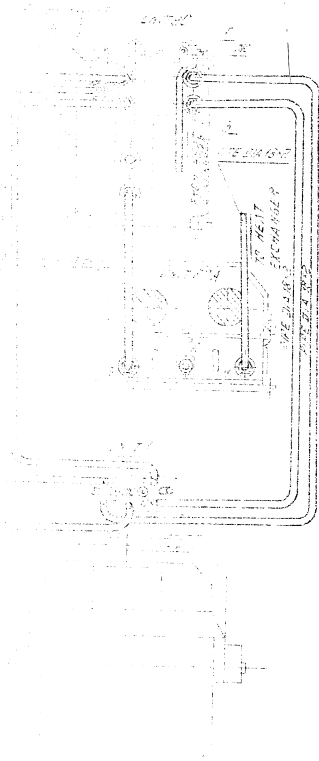
Sheet 1	Sheet 1
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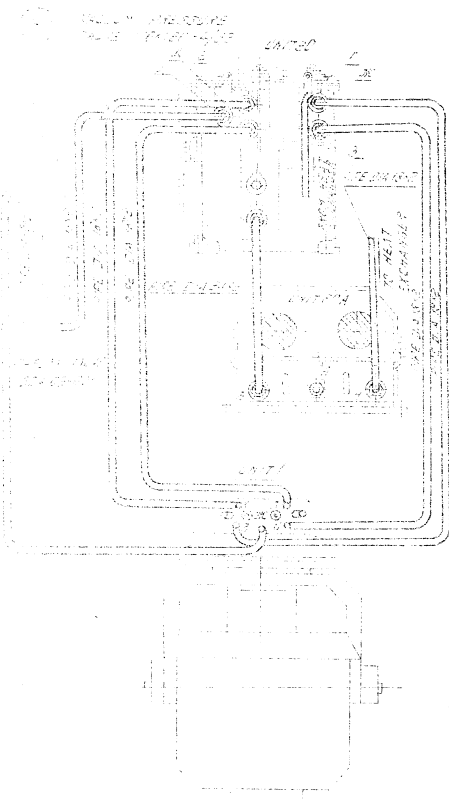
1. ALL PIPE IS MADE OF COPPER PIPES HIC 102167-33 OR OF COPPER-NICKEL PIPES HIC 102167-34 362 3449
2. PIPE LINES BETWEEN UNITS 1 AND 20 SHOULD BE NO LONGER THAN 6 M AND NUMBER OF BENDS OVER LENGTH OF PIPE LINE SHOULD BE MINIMUM, BUT NOT EXCEEDING 10 BENDS 10557
3. UNIT 201 SHOULD BE INSTALLED UNDER UNIT 20 OR NEAR IT ON SAME LEVEL
4. BASE OF UNIT 201 SHOULD NOT BE ABOVE BASE OF UNIT 20
5. WHEN UNITS 20 AND 201 ARE INSTALLED ON ONE LEVEL, PIPE LINE BETWEEN THEM SHOULD NOT EXCEED 1 M. IF LENGTH OF PIPE LINE CONNECTING UNITS 20A AND 20 EXCEEDS 1 M, PIPE LINE SHOULD HAVE INCLINATION 15-100 IN DIRECTION OF UNIT 20A. MAXIMUM LENGTH SHOULD NOT EXCEED 4 M
6. UNIT 20 SHOULD BE LOCATED ON ONE LEVEL WITH UNIT 20 OR ABOVE IT, BUT IT SHOULD BE ABOVE WATER LINE UNLESS THAN ONE METER
7. ALL PIPES ARE CONNECTED TO UNITS WITH UNION CONNECTIONS. UNION CONNECTIONS ARE FURNISHED TOGETHER WITH UNITS. UNION CONNECTIONS FOR SAFETY VALVE ARE FURNISHED TOGETHER WITH INSTALLATION SET.
8. VALVE PRESSURE GAUGE MAY BE LOCATED DIRECTLY ON COIL OF UNIT 20 OR IN ANY OTHER PLACE CONVENIENT FOR VISUAL INSPECTION
9. SAFETY VALVE SHOULD HAVE ACCESS TO EASY ADJUSTMENT. IT SHOULD BE ADJUSTED AT A PRESSURE OF 1.5 MPa
10. BEFORE BEING CONNECTED TO UNITS PIPES SHOULD BE TESTED FOR TIGHTNESS AT INNER PRESSURE. TESTING FOR THIS PURPOSE OIL OF GRADE MBD 100 IS USED
11. PIPES ARE WELDED ONLY WHEN THEIR INNER DIAMETERS ARE MAINTAINED CONSTANT
12. PIPE LINES SHOULD BE WITH JOINTS WHICH SHOULD HAVE RADIUS NO LESS THAN 100 MM AND SHOULD BE LOCATED NEAR DOWNHEAD CASTINGS AND NEAR UNITS WITH SHOCK RESISTORS
13. IN CASE OF HYDRAULIC DRIVE IT IS NECESSARY TO INSTALL HEAT EXCHANGER IN INTERMEDIATE UNION CONNECTION (H) TO UNIT 20 (UNION CONNECTION I). HEAT EXCHANGER SHOULD BE OF CONNECTION AS TO ALLOW IT TO BE SHUTTED DURING OPERATION OF HYDRAULIC SYSTEM. QUANTITY OF HEAT ELIMINATED BY MEANS OF HEAT EXCHANGER SHOULD BE SUCH THAT OIL TEMPERATURE AT HEAT EXCHANGER OUTLET NOT EXCEEDING 60°C
14. MAXIMUM PRESSURE IN HEAT EXCHANGER NOT EXCEEDING 100 MPa (1000 MPa) CONSUMED DURING OPERATION OF HYDRAULIC SYSTEM IS 200 MPa (2000 MPa)
15. JOINTS OF PIPE LINES (WITH THE EXCEPTION OF UNION CONNECTIONS) LOCATED IN SOME CASES IN CASE WITH STRIP MADE OF BLANKING-PROOF NUMBER OF AVERAGE HARDNESS 100 MPa (1000 MPa) FOR THIS PURPOSE OIL OF GRADE MBD 100 IS USED
16. INTERMEDIATE CONNECTIONS OF PIPES DISCONNECTED FROM UNITS 1, 20, 20A AND 20 SHOULD BE TESTED FOR TIGHTNESS AT A PRESSURE OF 1.5 MPa (15 MPa) BEFORE BEING USED. PIPE LINES SHOULD BE WASHED WITH OIL OF GRADE MBD 100 (1000 MPa) OR WITH OIL OF GRADE MBD 100 (1000 MPa) AFTER PIPE LINES ARE WASHED, OIL SHOULD BE COMPLETELY REMOVED
17. FOR TOLERANCES, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, INDICATED IN THIS DIAGRAM, SEE ERECTION DRAWINGS AND 050107-1, 050107-2, 050107-3



MT-311
PIPE LINE OF
HYDRAULIC
DRIVE

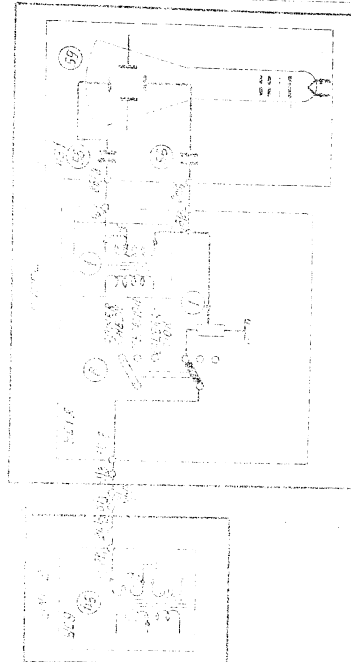
050106046CX11

Sheet 1 of 1



1. OIL PIPE IS MADE OF COPPER PIPES MEC 1007617-33 OR OF COPPER-NICKEL PIPES MMMS-1 T4 ⁹⁶²³⁴⁴⁹ ^{NO 10557}
2. PIPE LINES BETWEEN UNITS 1 AND 20 SHOULD BE NO LONGER THAN 6 M AND NUMBER OF BENDS OVER LENGTH OF PIPE LINE SHOULD BE MINIMUM BUT NOT EXCEEDING 10 BENDS
3. UNIT 20A SHOULD BE INSTALLED UNDER UNIT 20 OR NEAR IT ON SAME LEVEL. BASE OF UNIT 20A SHOULD NOT BE ABOVE BASE OF UNIT 20. WHEN UNITS 20 AND 20A ARE INSTALLED ON ONE LEVEL, PIPE LINE BETWEEN THEM SHOULD NOT EXCEED 1 M. IF LENGTH OF PIPE LINE CONNECTING UNITS 20A AND 20 EXCEEDS 1 M, PIPE LINE SHOULD HAVE INCLINATION OF 100 IN HORIZONTAL IN UNIT 20A. MAXIMUM LENGTH SHOULD NOT EXCEED 4 M.
4. UNIT 20 SHOULD BE LOCATED ON ONE LEVEL WITH UNIT 20 OR ABOVE IT, BUT IT SHOULD BE ABOVE WATER LINE NO LESS THAN ONE METER.
5. OIL PIPES ARE CONNECTED TO UNITS WITH UNION CONNECTIONS. UNION CONNECTIONS ARE FURNISHED 1 FOOT PER WITH UNITS. UNION CONNECTIONS FOR SAFETY VALVE ARE FURNISHED TOGETHER WITH INSTALLATION SET.
6. VACUUM PRESSURE GAUGE MAY BE LOCATED DIRECTLY ON COVER OF UNIT 20 OR IN ANY OTHER PLACE CONVENIENT FOR VISUAL INSPECTION.
7. SAFETY VALVE SHOULD HAVE ACCESS TO "PERMIT" ADJUSTMENT. IT SHOULD BE ADJUSTED AT A PRESSURE OF 15.5 PSI.
8. PRIOR TO BEING CONNECTED TO UNITS PIPES SHOULD BE TESTED FOR TIGHTNESS AT INNER PRESSURE. IF STYPHON FOR THIS PURPOSE OIL OF GRADE H80 IS USED.
9. PIPES ARE HELDED ONLY WHEN THEIR INNER DIAMETERS ARE MAINTAINED CONSTANT.
10. PIPE LINES SHOULD BE WITH LOOPS WHICH SHOULD HAVE RADIUS NO LESS THAN 100 MM AND SHOULD BE LOCATED NEAR BUCKHEAD CASTINGS AND NEAR UNITS WITH SHOCK ABSORBERS.
11. TO AVOID OIL OF HYDRAULIC SYSTEM IT IS NECESSARY TO INSTALL HEAT EXCHANGER IN CONNECTION WITH UNIT 20A. UNION CONNECTION WITH UNIT 20 (UNION CONNECTION 1). HEAT EXCHANGER SHOULD BE CONNECTED AS TO ALLOW IT TO BE SHUNTED DURING OPERATION OF HYDRAULIC SYSTEM. QUANTITY OF HEAT LIBERATED BY MEANS OF HEAT EXCHANGER SHOULD BE 1000 BTU/H. OIL TEMPERATURE AT HEAT EXCHANGER OUTLET NOT EXCEEDING 80°C. MAX. OIL PRESSURE IN HEAT EXCHANGER NOT EXCEEDING 150 PSI. OIL CONSUMED THROUGH HEAT EXCHANGER IS 20 L/H. (OIL OF GRADE H80 (OIL 1005-51) WORKING PRESSURE OF HYDRAULIC SYSTEM IS 20 L/H.)
12. JOINTS OF PIPE LINES (WITH THE EXCEPTION OF UNION CONNECTIONS) LOCATED IN DOME SHOULD BE GULLED WITH STRIP MADE OF BUTYL-RUBBER OF AVERAGE HARDNESS 60-70 SHORE A. FOR THIS PURPOSE 804 ⁹⁶²³⁴⁴⁹ ^{NO 10557} IS USED.
13. INTERMEDIATE CONNECTIONS OF PIPES DISCONNECTED FROM UNITS 120, 20A AND 24 SHOULD BE TESTED FOR TIGHTNESS AT A PRESSURE OF 15.5 PSI/G. BEFORE TEST ALL PIPE LINES SHOULD BE WASHED WITH OIL OF GRADE H80 (OIL 1005-51) OR WITH OIL OF GRADE H80 (OIL 1005-51) AFTER PIPE LINES ARE WASHED, OIL SHOULD BE COMPLETELY REMOVED.
14. FOR INDEXES 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

MF-311
PIPE LINE OF
HYDRAULIC
DRIVE



POWER CHECK
DIAGRAM

1041.06.046 Cx10

01005-1 01005-1

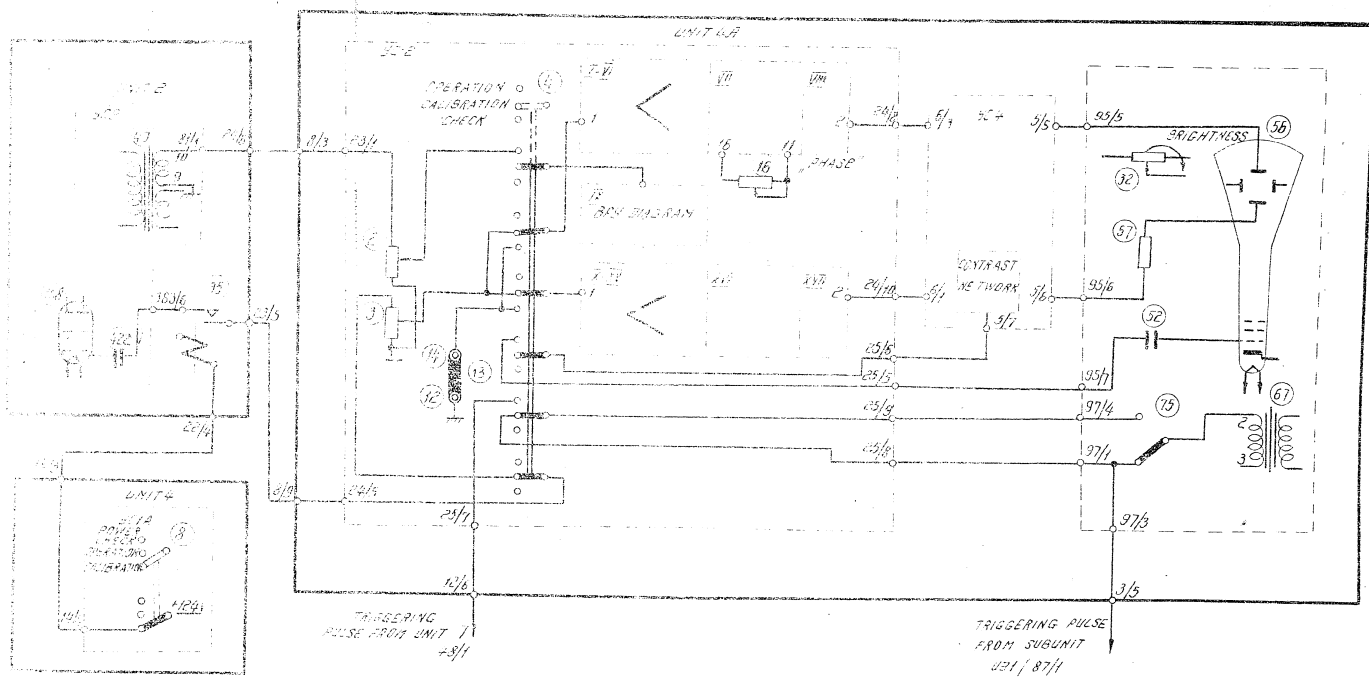
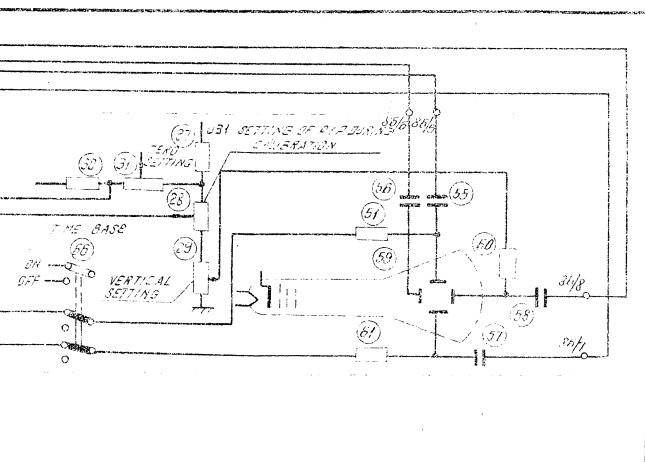
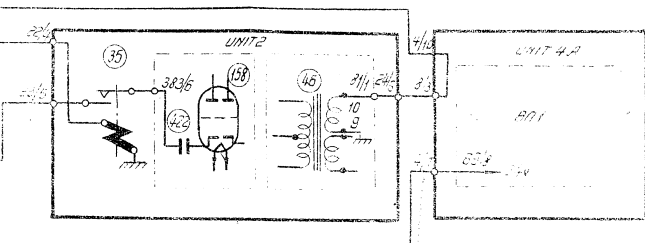
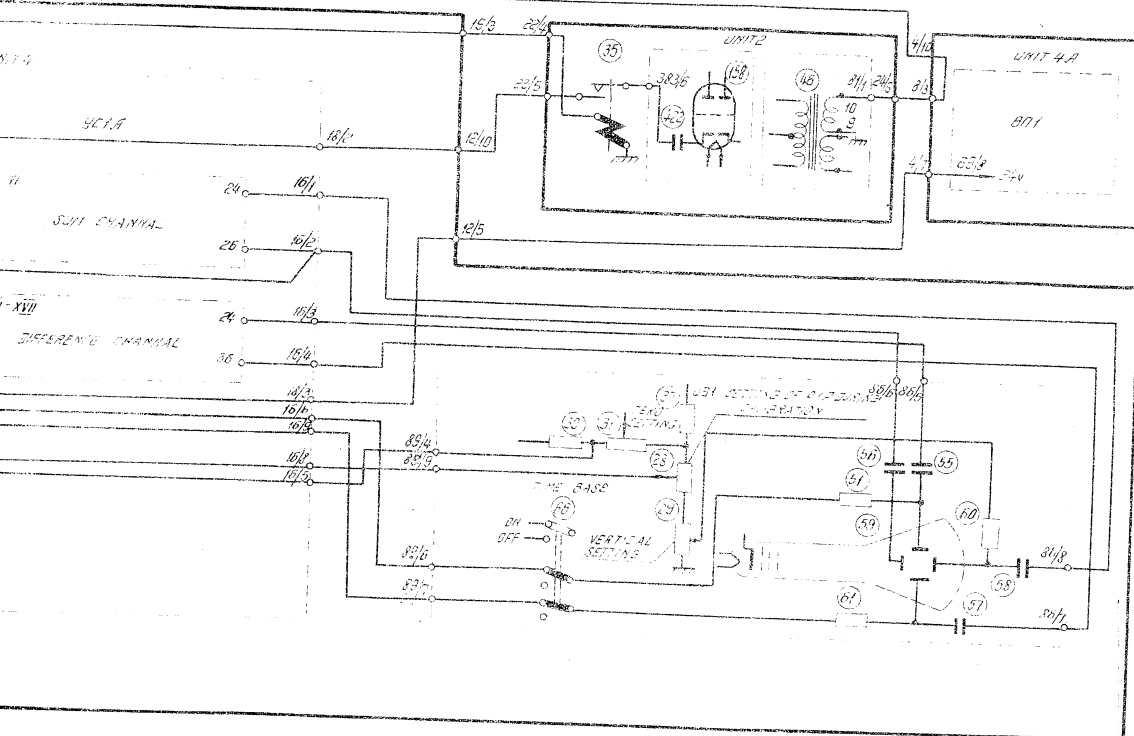


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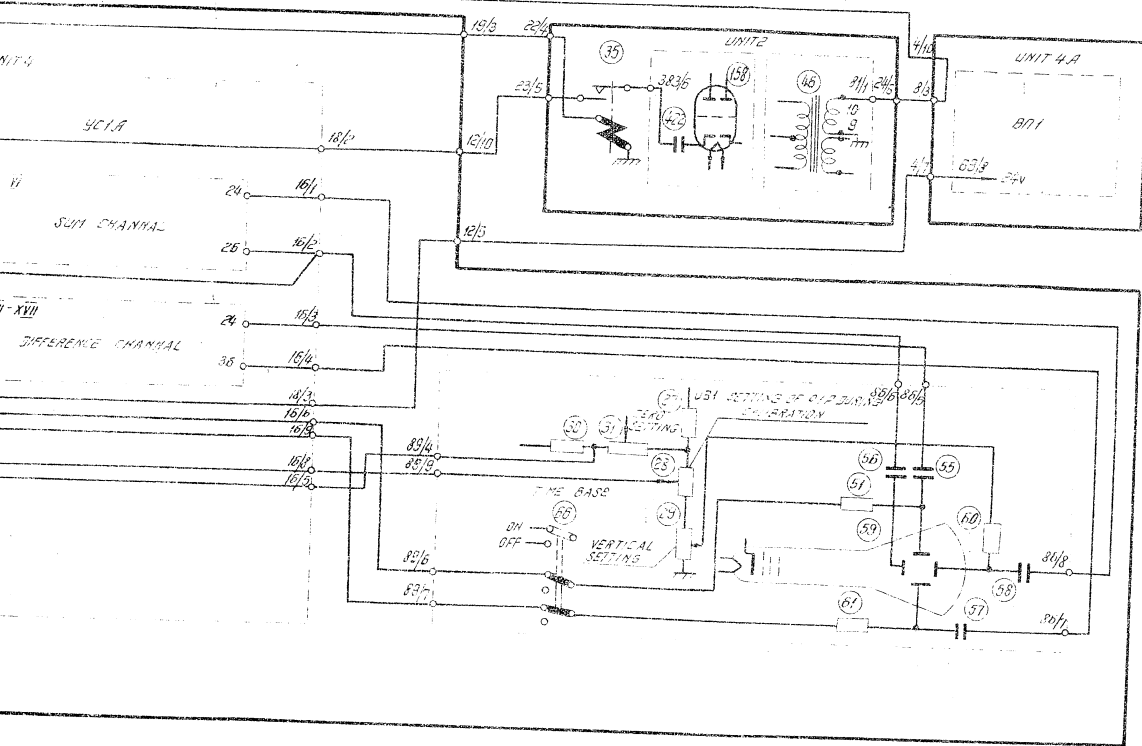


JMC-311 DIAGRAM OF CALIBRATION OF RANGE AND RELATIVE BEARING CHANNEL	141,106,046C x8 sheet 1 sheets 1
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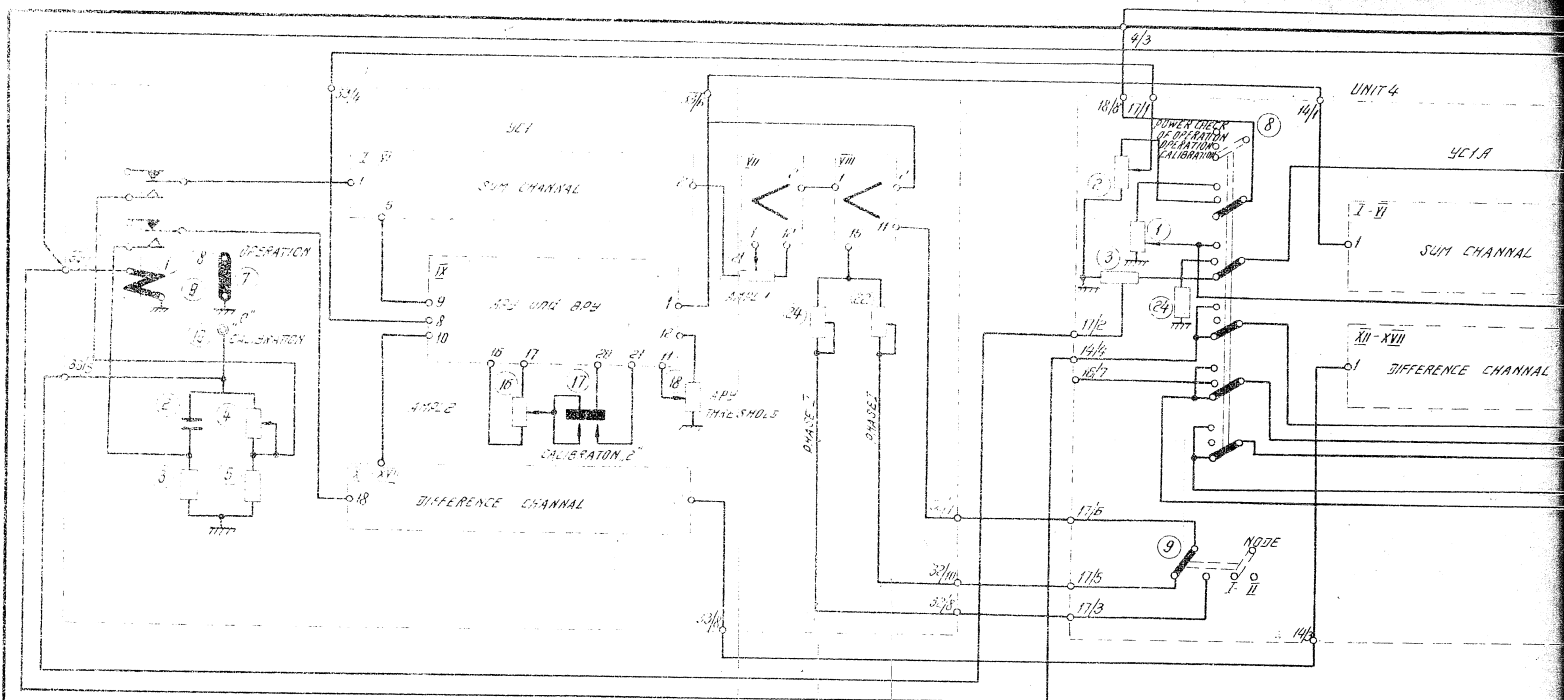
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DIAGRAM
OF CALIBRATION OF
RANGE AND RELATIVE
BEARING CHANNEL

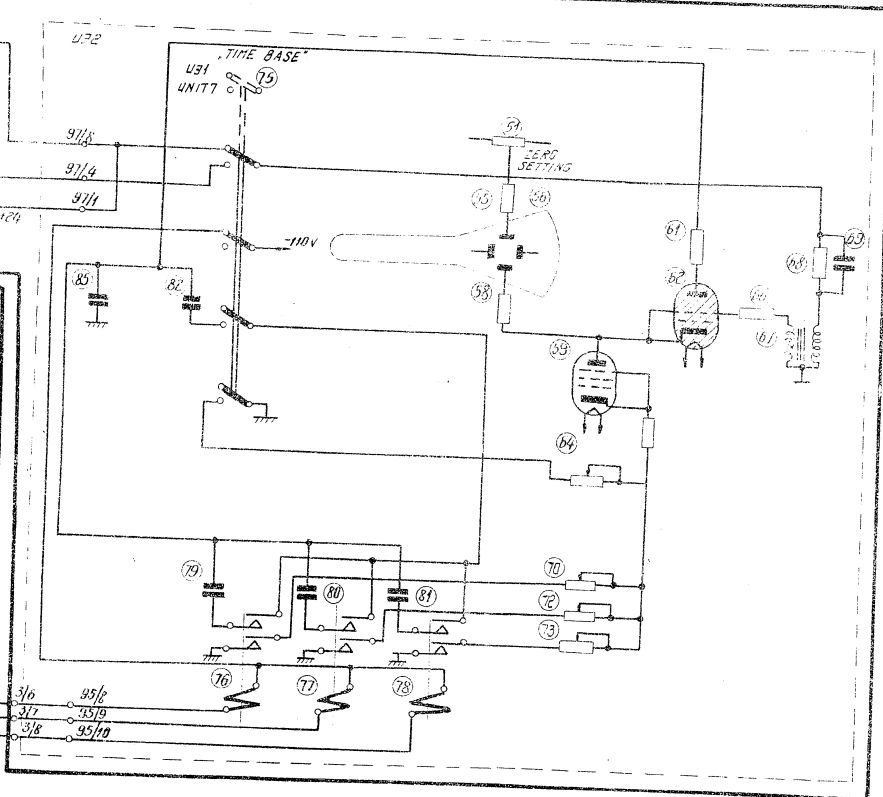
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MI-311
DIAGRAM
OF CALIBRATION OF
RANGE AND RELATIVE
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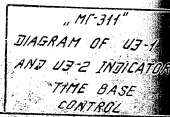
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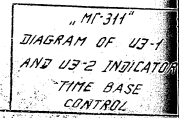


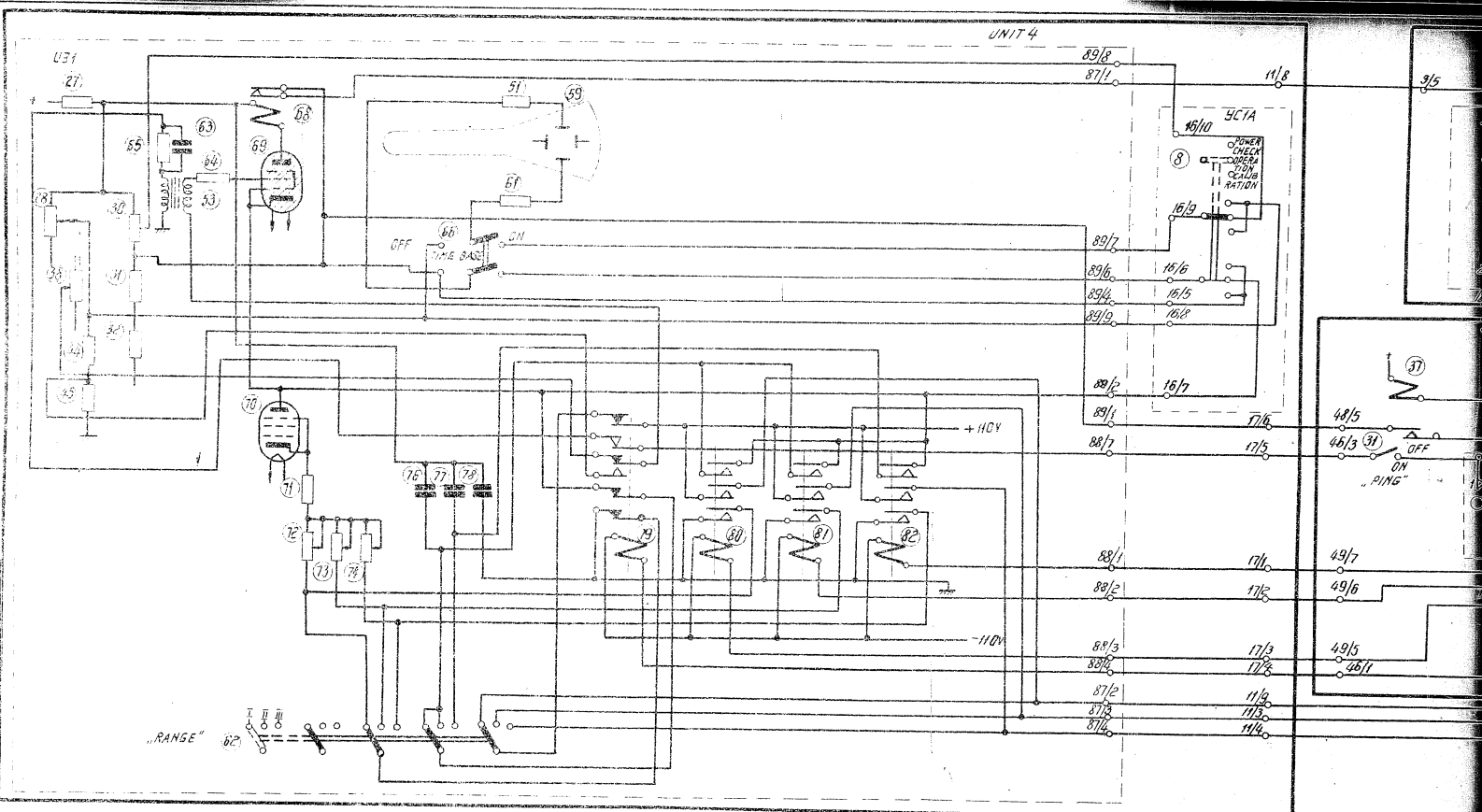


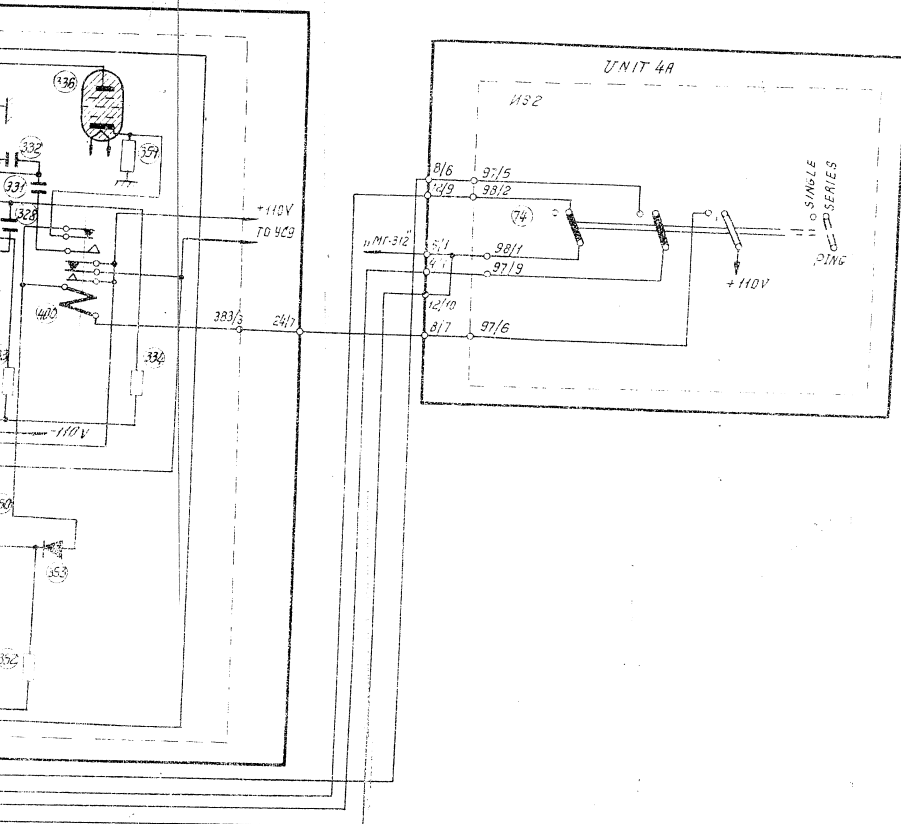
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 AND U3-2 INDICATOR
 TIME BASE
 CONTROL

141.106046C x 7
 Sheet 1 of 1



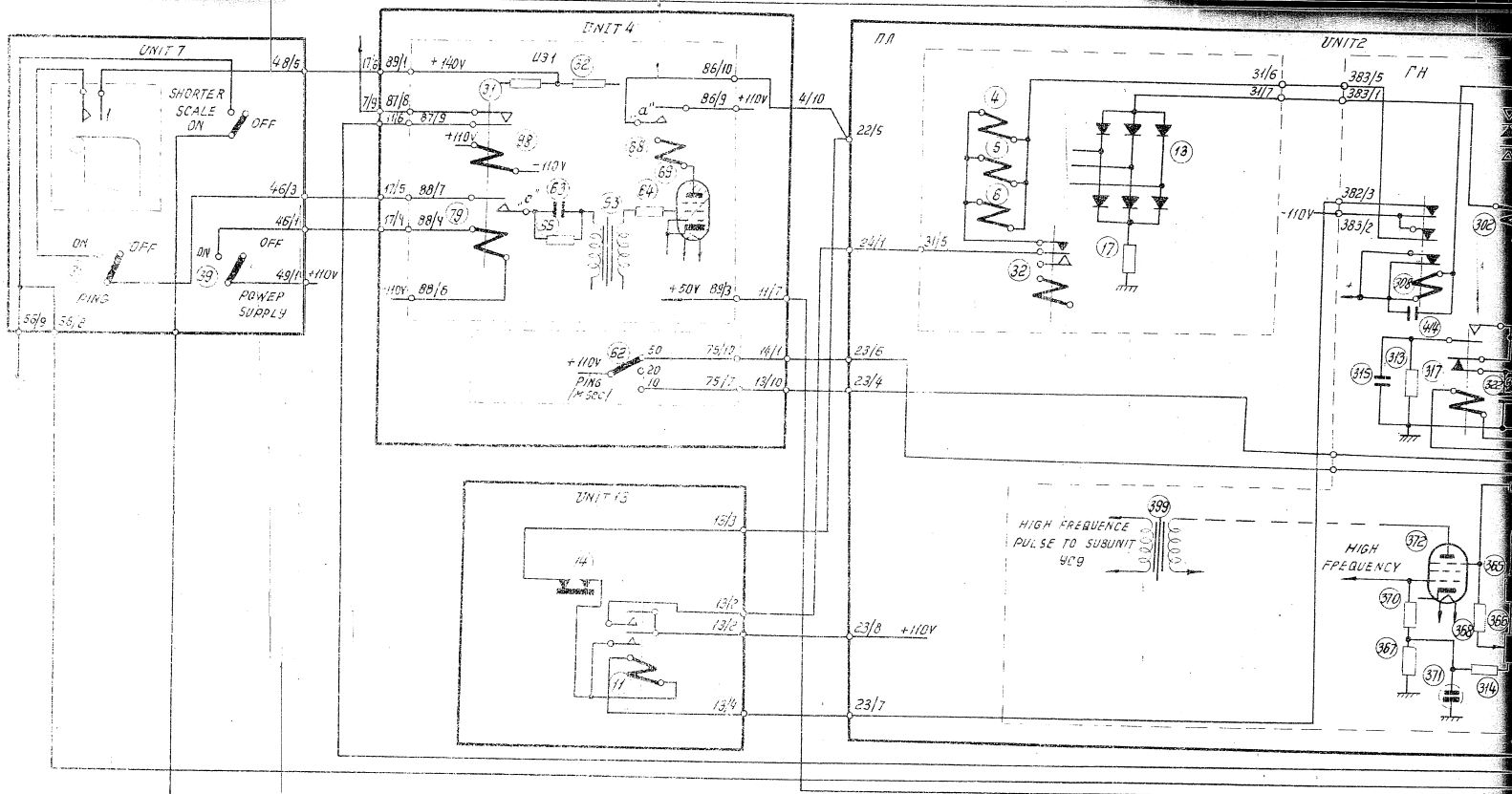


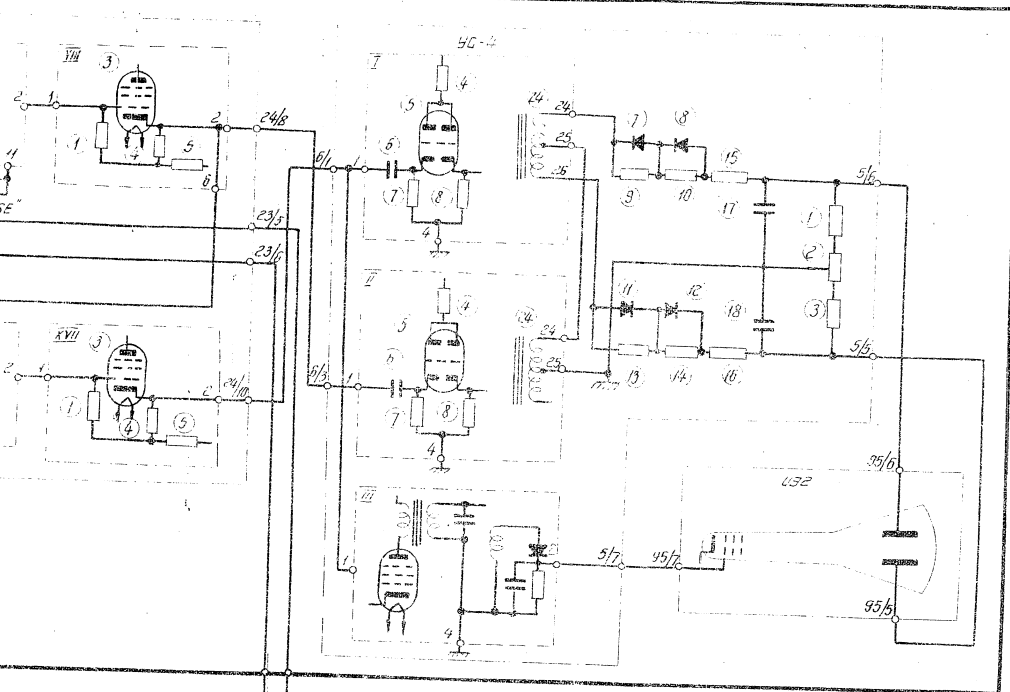




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PING CONTROL	
DIAGRAM	
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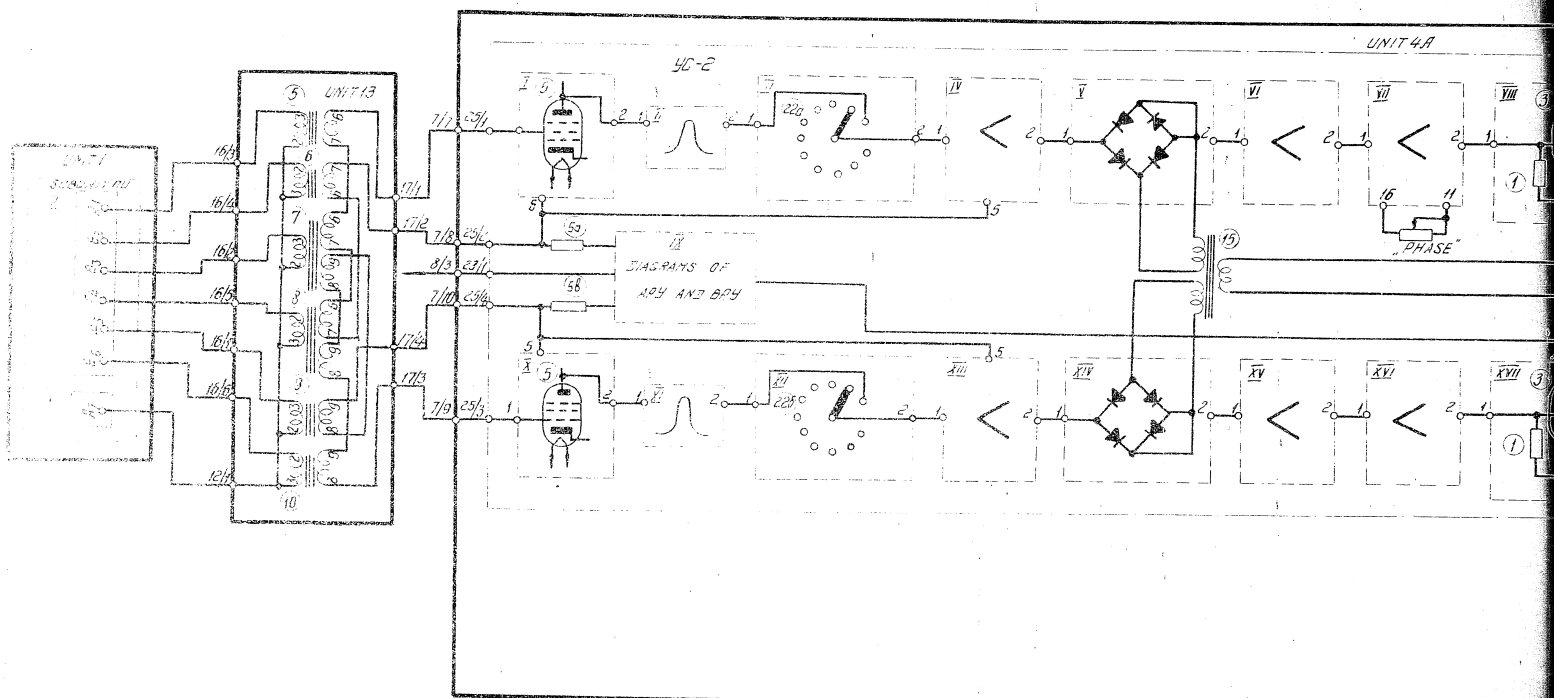


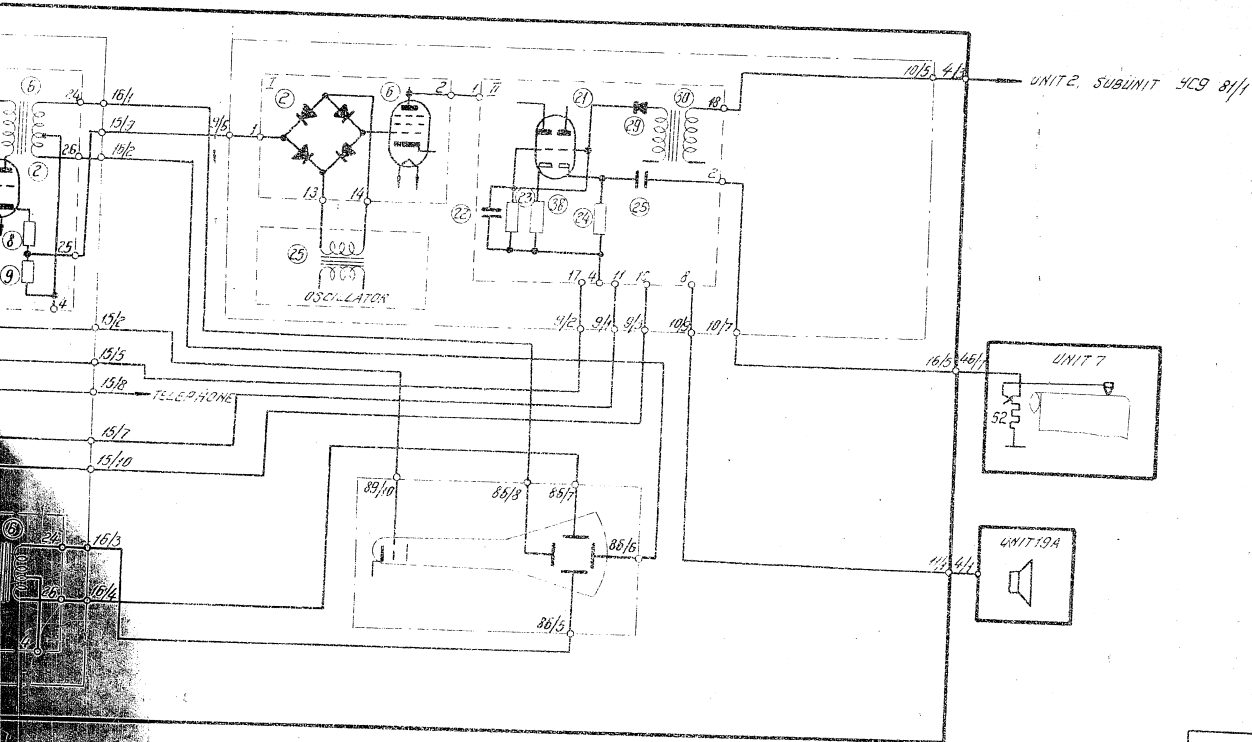




UNIT 2 22/6 UNIT 2 SUBUNIT TH 382/6

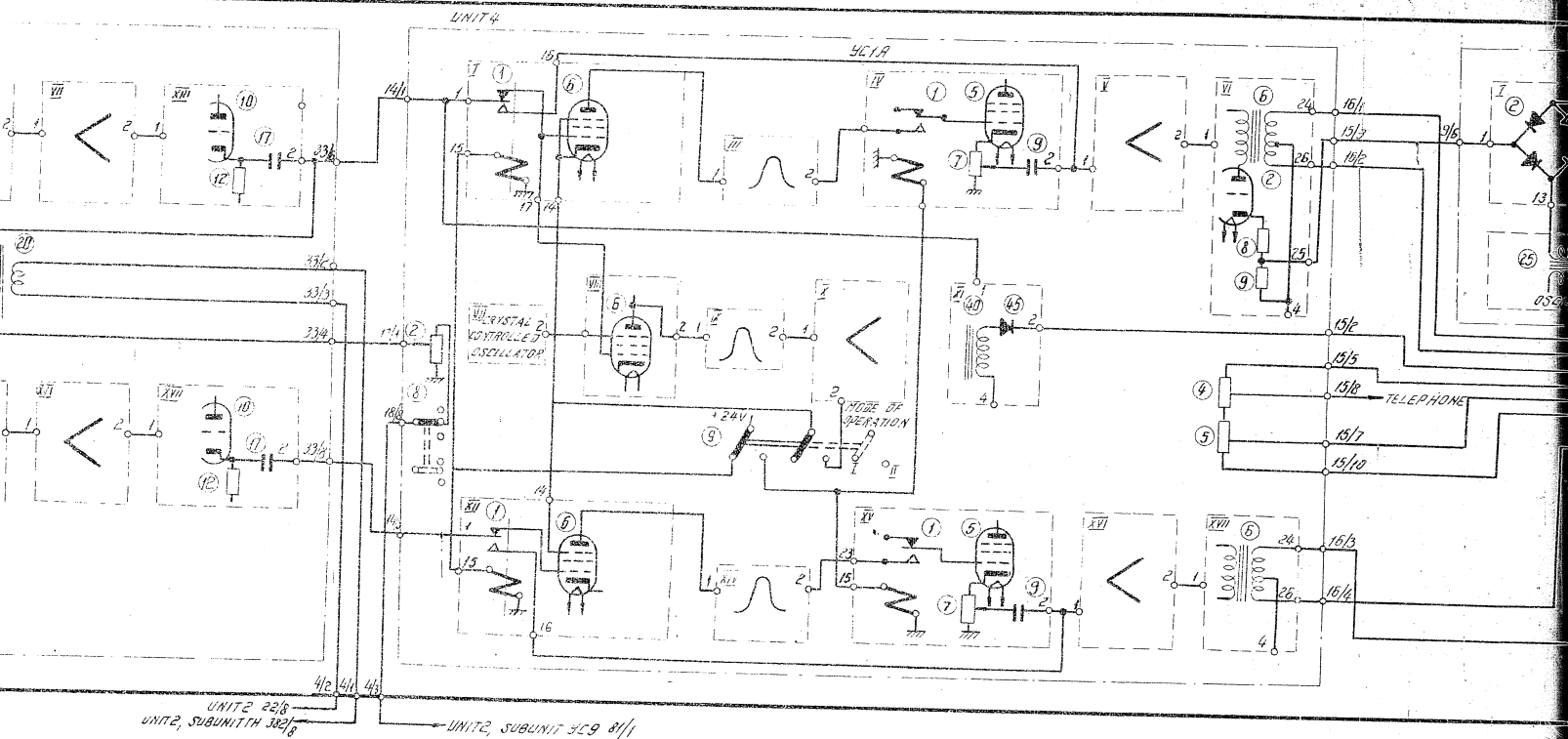
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RECEPTION	
THROUGH TILT	
ANGLE CHANNEL	
141106.046 CX5	sheet 1 sheets 1



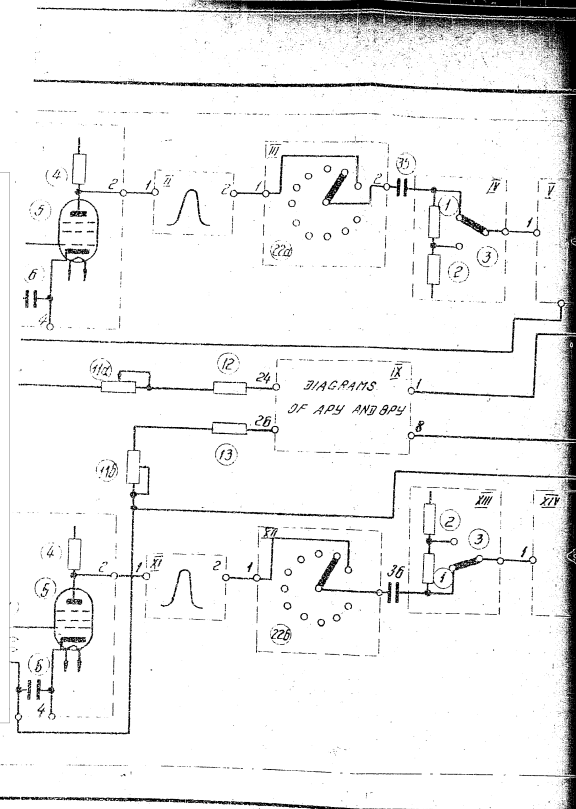
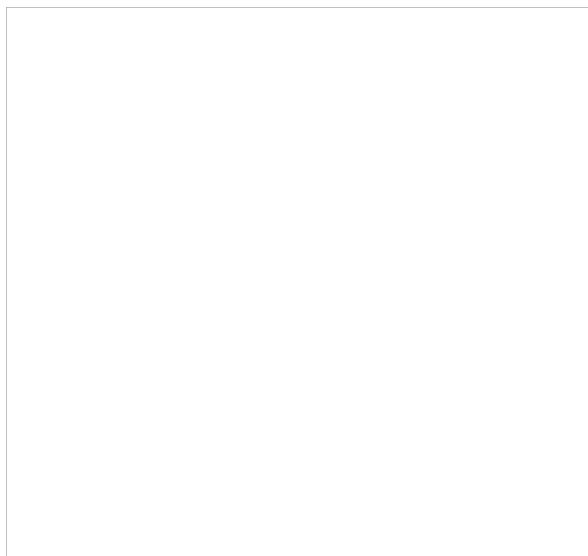


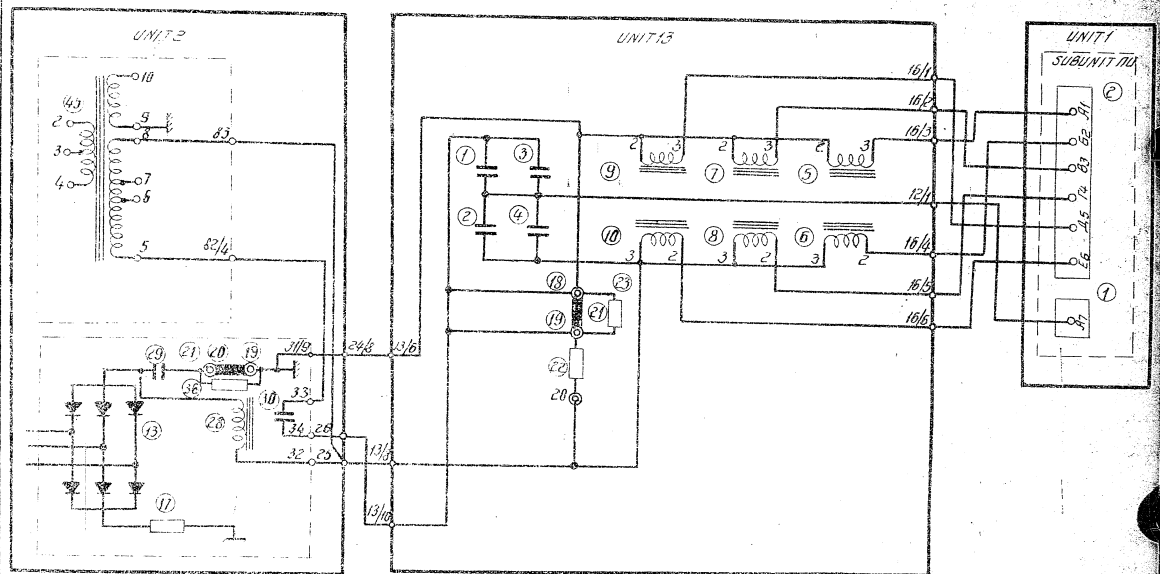
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 DIAGRAM OF RECEPTION
 THROUGH RANGE AND
 RELATIVE BEARING
 CHANNEL

141106046EX4
 Sheet 1 of 1



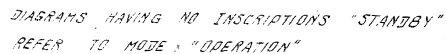
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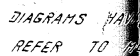


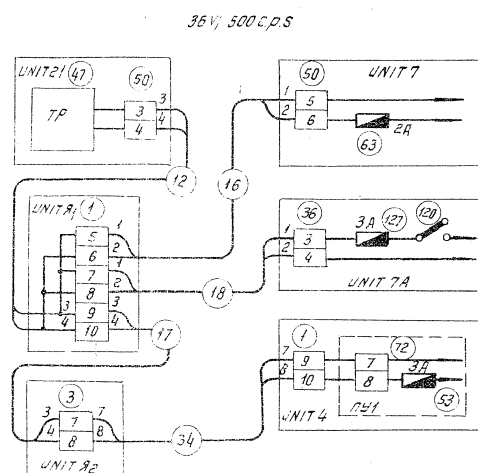
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RADIATION
DIAGRAM

144106046EX3
Sheet 1 of 1



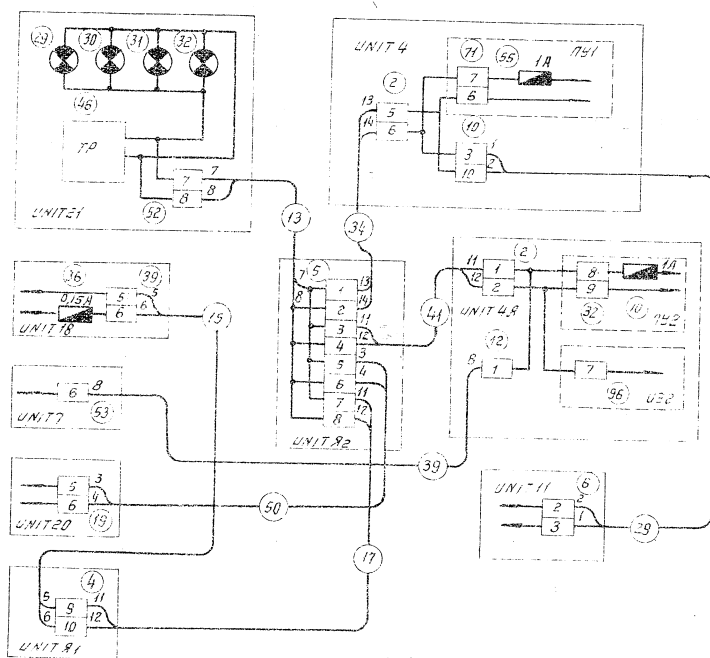
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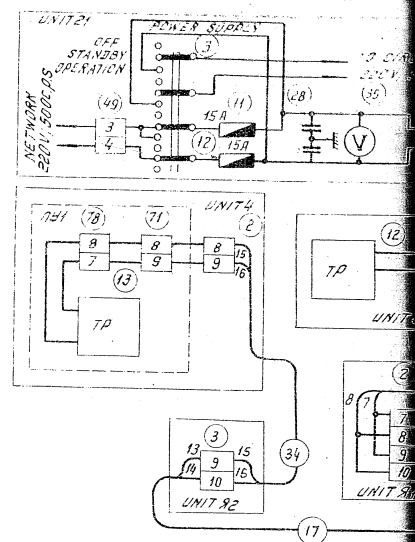


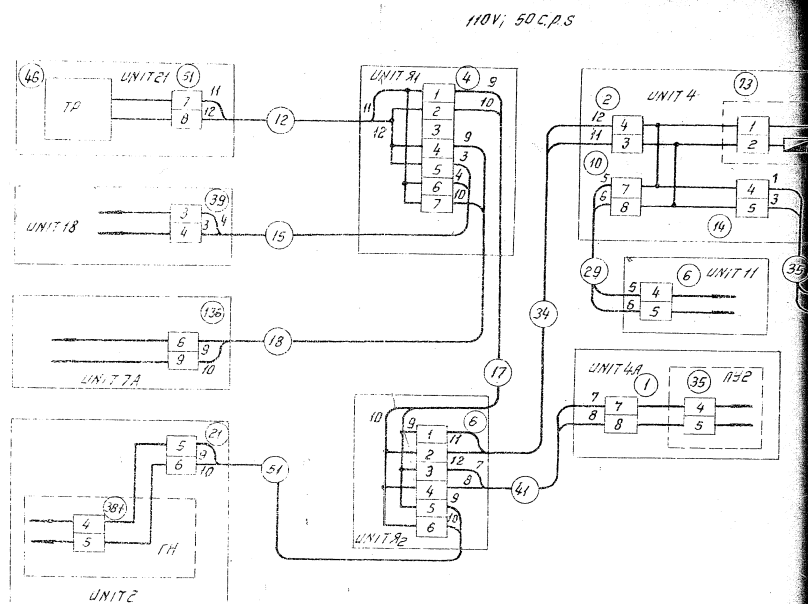
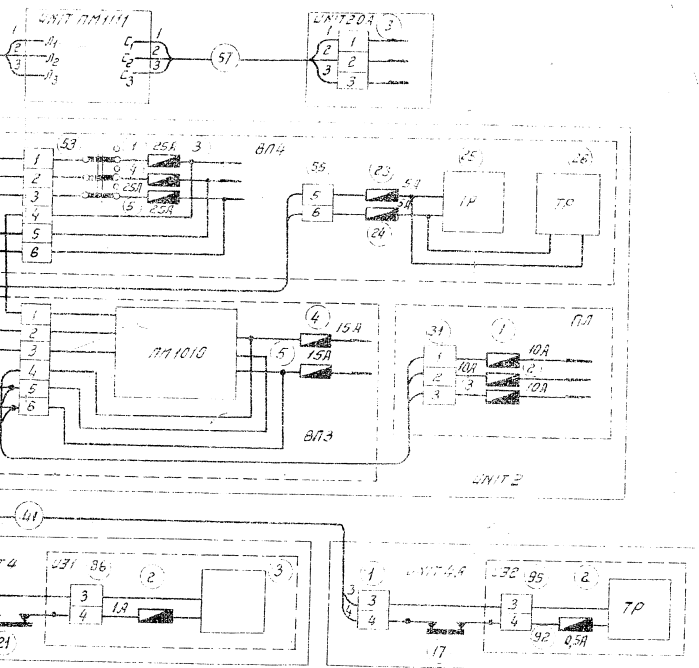


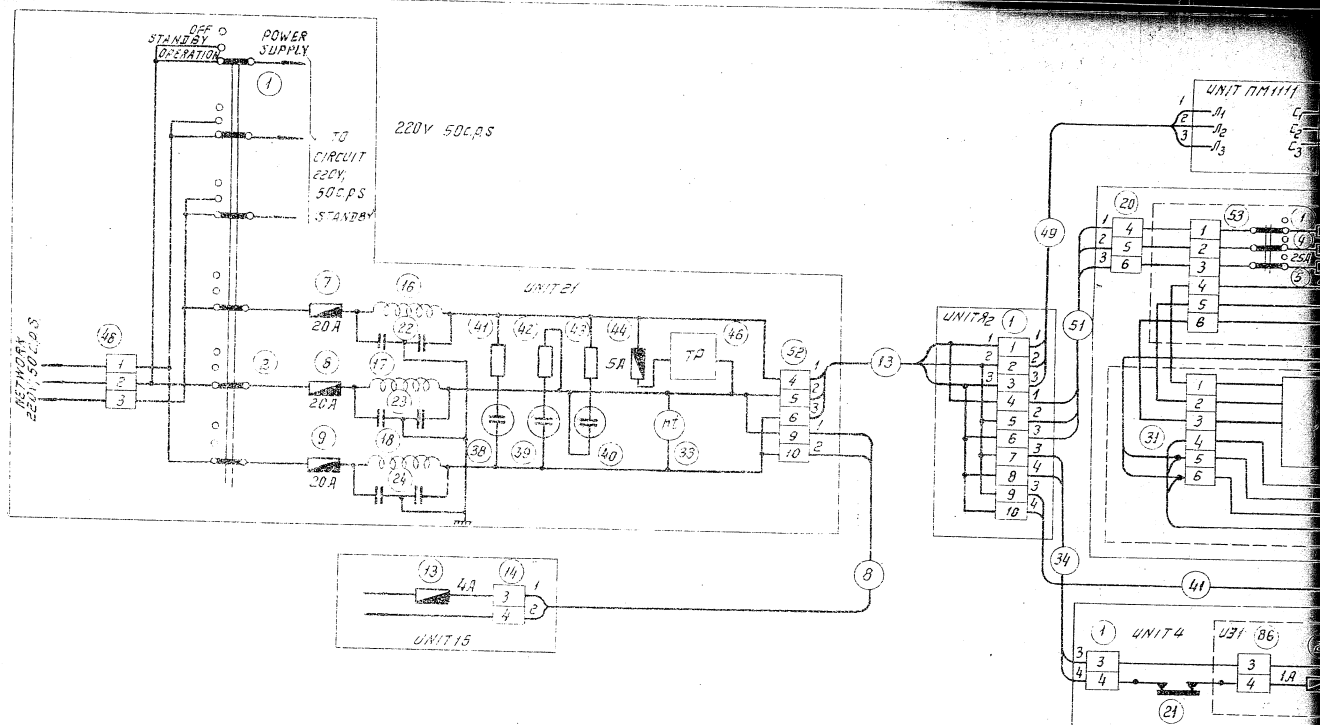
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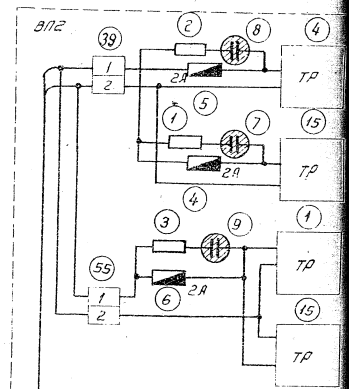
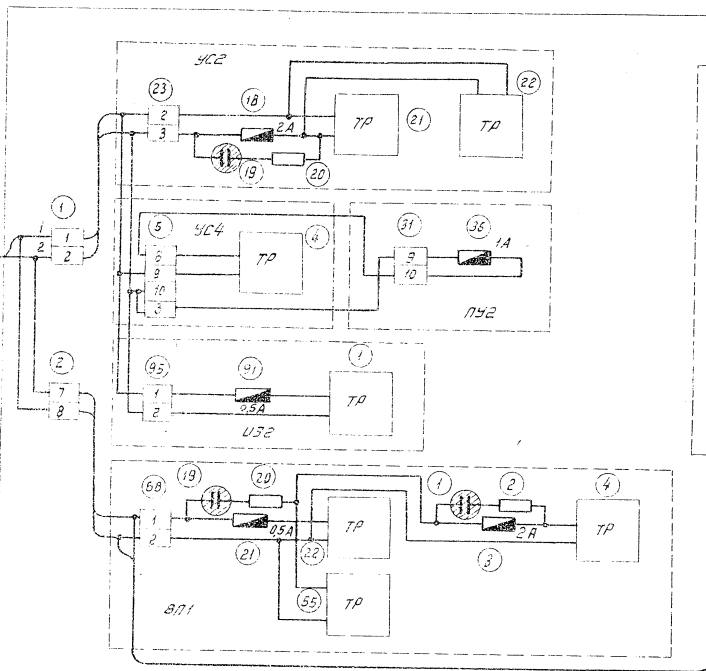
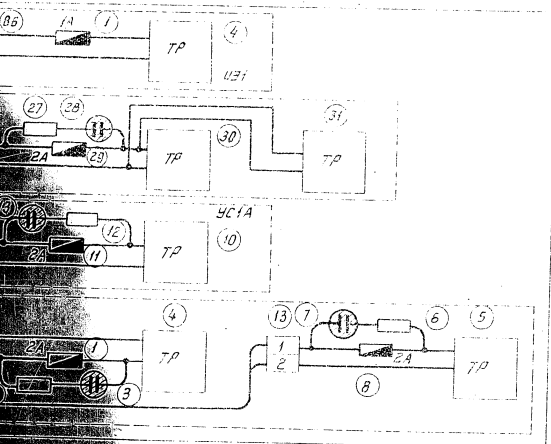
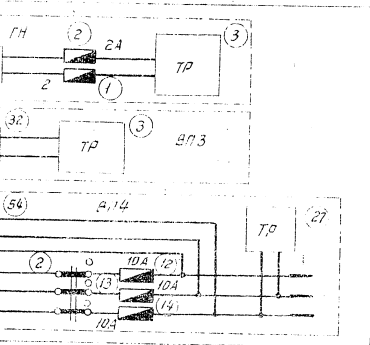


220V 500cps.
STANDBY



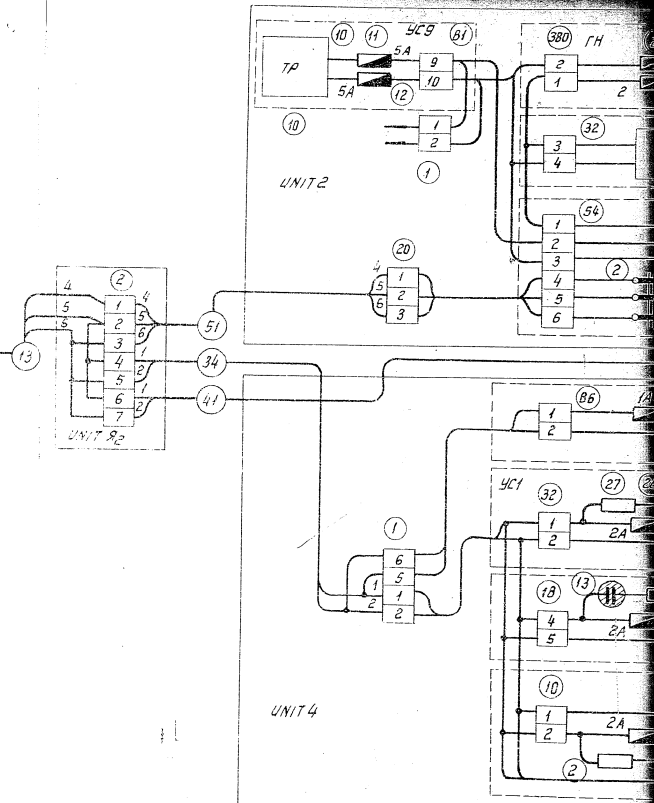
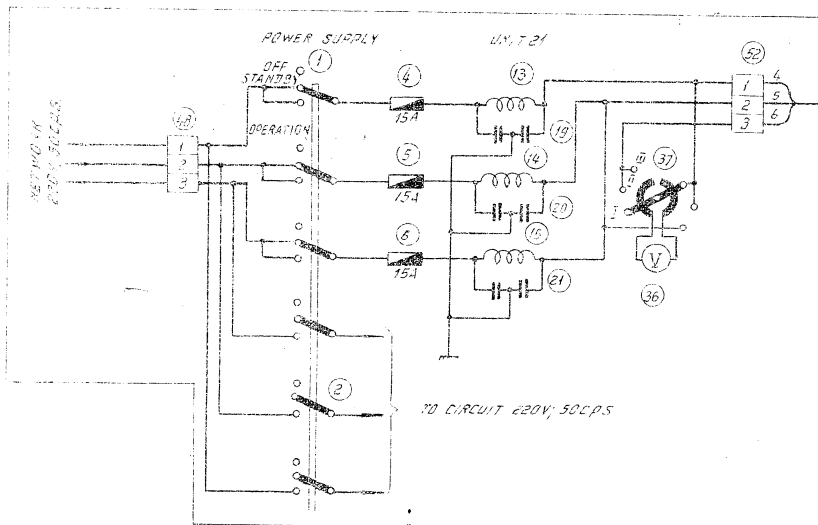






UNIT 4 A

220V 50cps.
"STANDBY"



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220V 50c
"STANDBY"

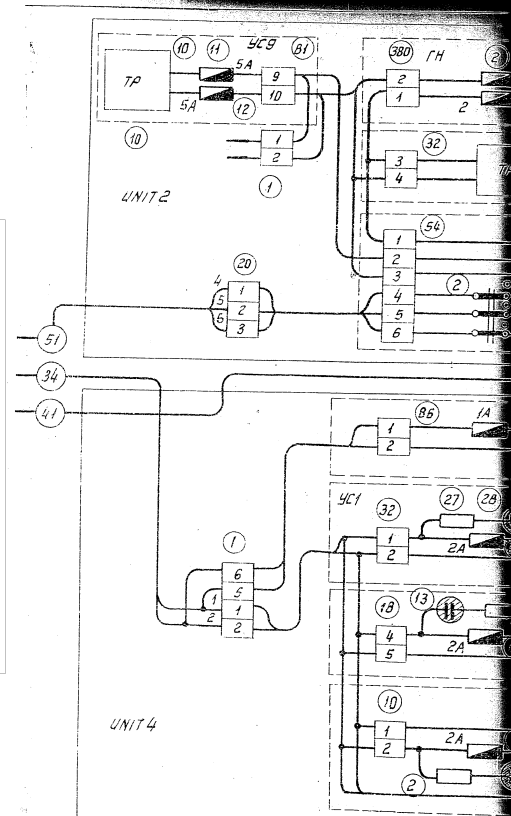
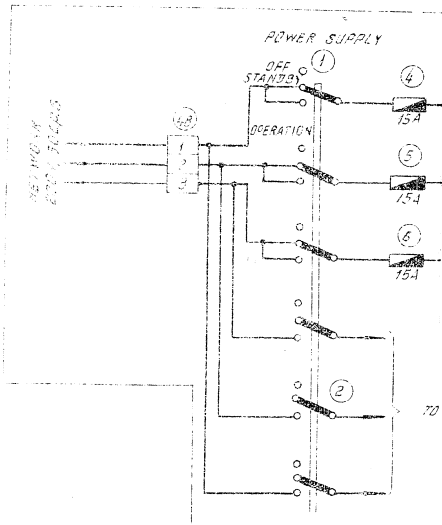
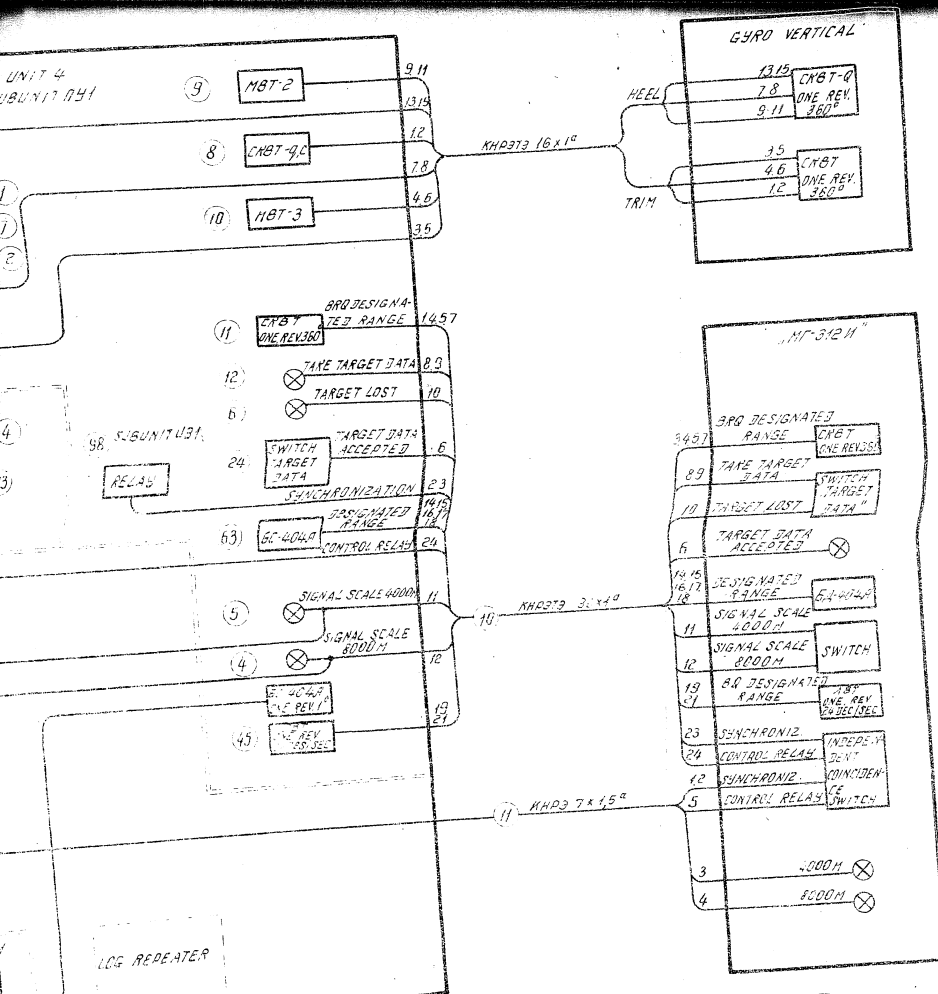
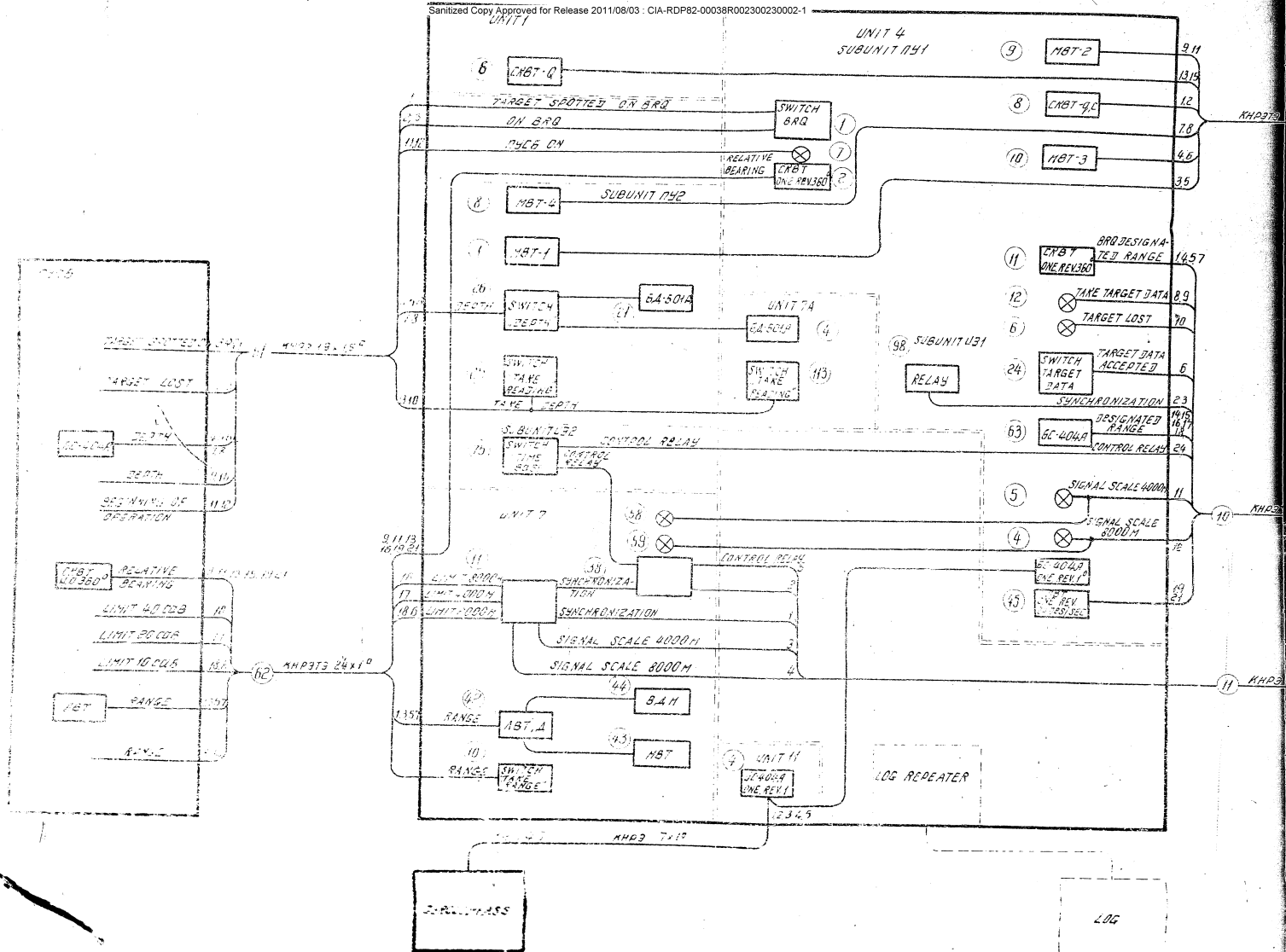
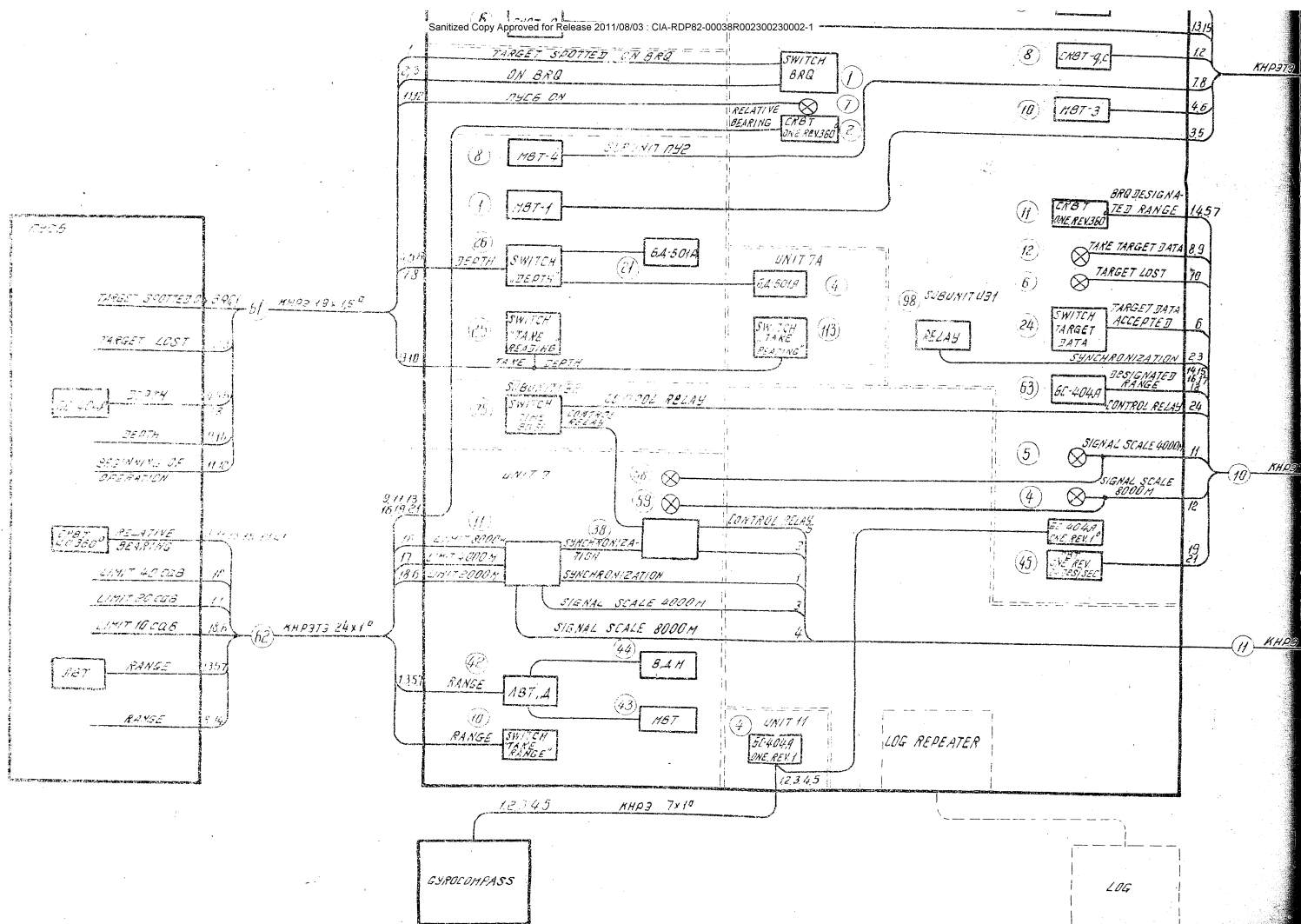


DIAGRAM OF EXTERNAL CONNECTIONS



1 REF NUMBERS OF ELEMENTS ARE IN COMPLIANCE WITH SCHEMATIC DIAGRAMS OF UNITS AND SUBUNITS
2 LOG REPEATER IS LOCATED NEAR UNIT 4 AND IS NOT INCLUDED IN SONAR TARGET DATA EQUIPMENT.





Item No.	Doc. Serial No.	Unit No.	Name	Number	Remark
1	AV-100-0400x1		Diagram of external connections	I	
2	AV-100-0400x2		Equipment power supply diagram	I	
3	AV-100-0400x3		Radiation diagram	I	
4	AV-100-0400x4		Diagram of reception through range and relative bearing channel	I	
5	AV-100-0400x5		Diagram of reception through tilt angle channel	I	
6	AV-100-0400x6		Ping control diagram	I	
7	AV-100-0400x7		Diagram of MP-1 and MP-2 indicator time base control	I	
8	AV-100-0400x8		Diagram of calibration of range and relative bearing channel	I	
9	AV-100-0400x9		Diagram of calibration and control of tilt angle channel	I	
10	AV-100-0400x10		Power check diagram	I	
11	AV-100-0400x11		Pipe line of hydraulic drive	I	
12	AV-100-0400x12		Diagram showing connection with MP-312M equipment	I	
13	AV-100-0400x13		Diagram of switching on subunits TV1, TV2 and VC4 in units 4 and 4A	I	

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